**Lighting and Color Correction in TVPaint**

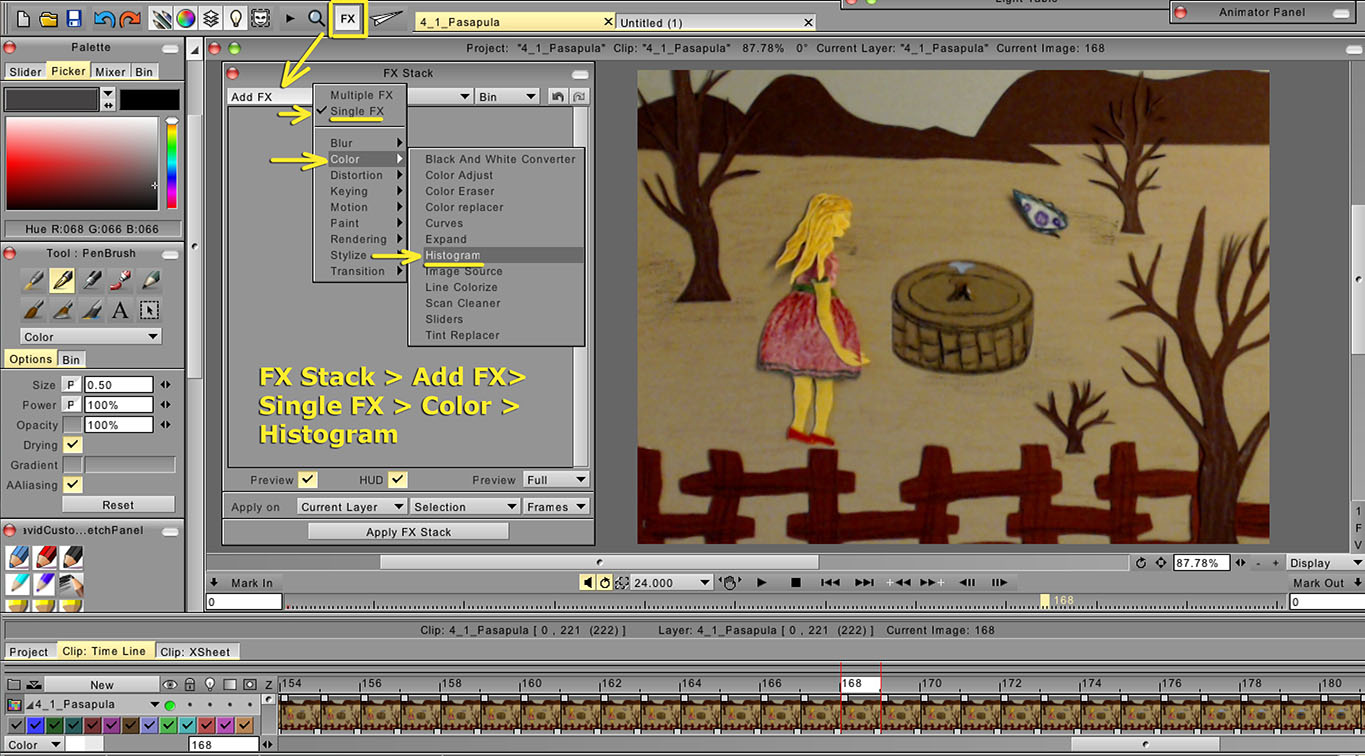
(the screen shots show TVPaint 10 interface, but this is the same in TVPaint 11)

A student wrote:

*“Is there a way in TVPaint to improve brightness of the clip if the lighting is weak ,  or do we have to take it to After Effects ?”*

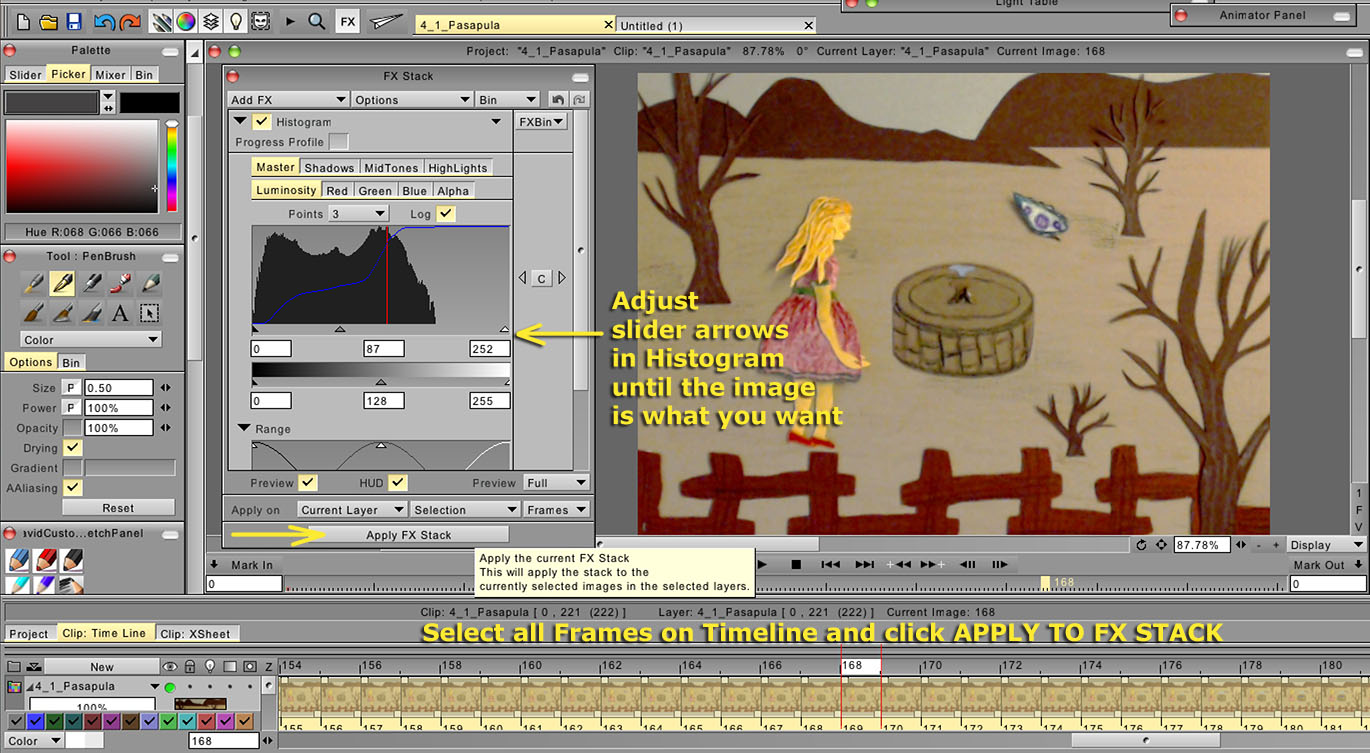
**My answer:**

If the overall clip is dark , you can open the FX Stack (the FX button at top level menu bar) and go to Color > Histogram.  The Histogram (similar to "Levels" in Photoshop)  will let you adjust the overall Master Luminosity , as well as adjustments to the Shadows, Midtones, Highlights, using the slider arrows

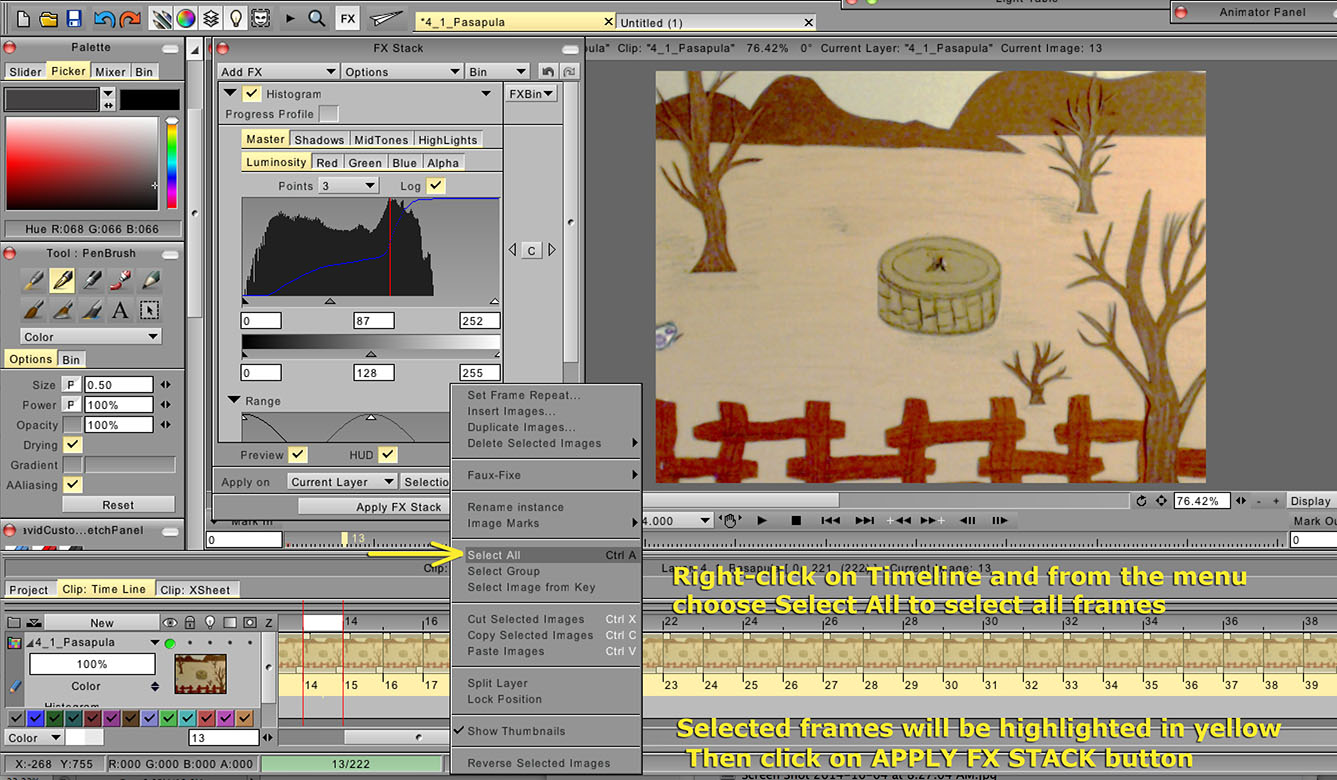


Make sure PREVIEW box is checked , and then adjust the sliders until the scene is sufficiently lightened  .... then make sure you have Selected All Frames on the Timeline  (right-click on Timeline frames , from the menu choose Select All ,  OR you can just click and drag your mouse cursor under the frames on the Timeline to select them all.  When they are selected they will be highlighted in yellow)

This is not an extreme example of a scene that was shot too dark , but you can see that lightening the scene brought out richer color and more of a feeling of daylight , instead of being overcast.



Now with all the frames you want to lighten selected hit APPLY FX STACK button at the bottom of the FX Stack window.   It will apply and render the adjustments you made with the Histogram.



*This trick works best if the overall lighting of the clip is fairly even* , not too contrasty with some areas of the frame very dark and some areas very light , because then the Histogram adjustment looks good for the darker areas of the frame , but it will tend to blow out the highlights on the lighter part of frame.   But in many cases this fix will salvage a clip that was too lit too dark.

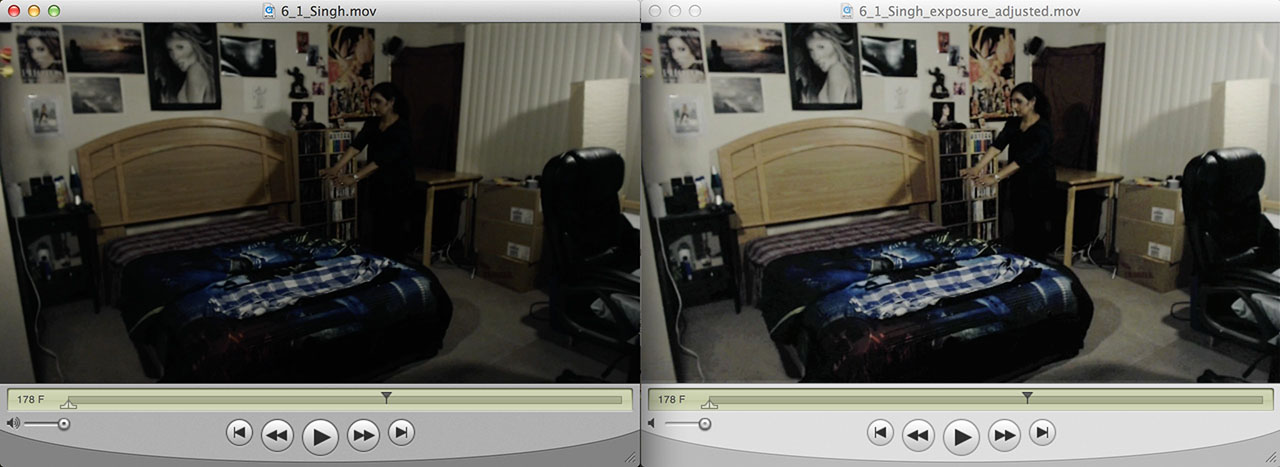
Where it gets really tricky is if you have some sections of the scene where the lighting varies a lot , so some frames are too dark, some frames are "normal", and some frames are too light.   In that case you can't really apply the same Histogram adjustment to all frames , because it would lighten the dark frames to look normal, but the other "normal" frames or too light frames would be lightened too much ,  you see  ?  So in the case where you've got "flickering" from some frames being too dark and others too light , you have to work in sections , adjusting the Histogram for different settings, to lighten the dark frames or darken the light frames, trying to find the settings that will match the majority of the "normal" frames.   This may take some trial & error to fine-tune the adjustments.

If you apply the Histogram adjustments to a set of frames and then it doesn't look good to you you can just hit UNDO  (CTRL Z) or use the Blue back arrow key (UNDO) in the top level menu bar to undo the FX you applied and start over.   After you apply FX and then UNDO the Preview of FX in the FX Stack window will be turned off , so you have to put a check mark next to it again.  You can also go to the top of the FX Stack window and select OPTIONS - Reset All  to reset the Histogram settings to start over.

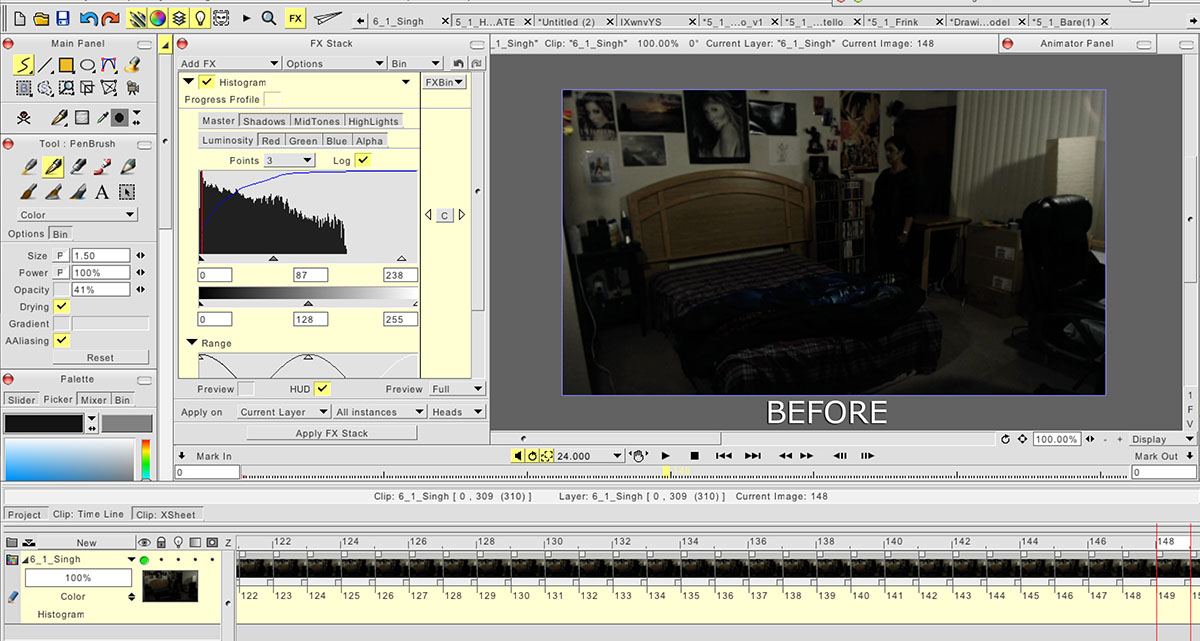
Again, **the best policy is to CHECK YOUR LIGHTING and CAMERA EXPOSURE carefully before you animate the scene to be sure you don't have to do drastic fixes after the fact.**   Capture about 10 or 12 test frames and see what it looks like when you export it to a movie, before you animate a long sequence.  If the scene is too dark  (or too light) then adjust the camera exposure and lighting before you invest too much time in shooting the scene

Here's another example,  from a student’s Mod. 6 Pixilation Animation , showing how the Histogram FX in TVPaint can be used to fix a scene that was photographed under-exposed . The student’s pixilated animation was fine , but the under-exposed image was distracting from his animation.  It's fixable with TVPaint:

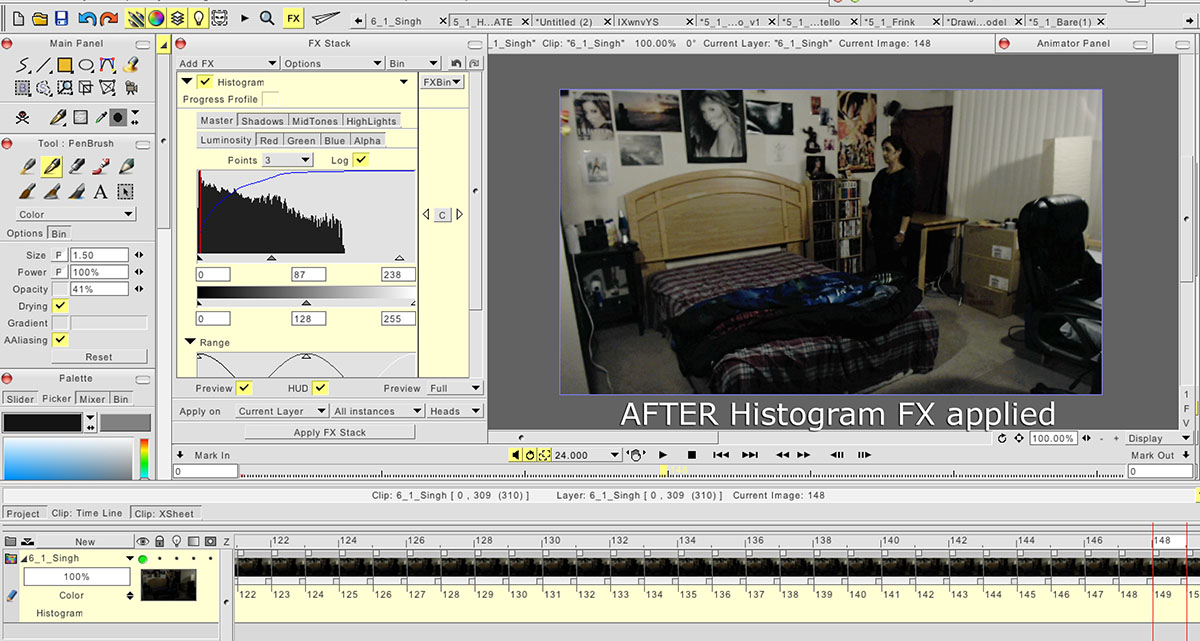
First image shows original exposure . Second image shows fixed image using TVPaint FX Stack > Histogram -



BEFORE -



AFTER -



 TVPaint has many powerful features to help you adjust/enhance/fix your image captures. This is all covered in the TVPaint User Manual . Dig in to it !

You can do the same sort of thing with After Effects to get rid of flicker or adjust the overall lighting if the scene is lit too dark , following this procedure :

**Manual fix in After Effects**

Here’s a fix based on advice given by [Dave LaRonde](http://forums.adobe.com/people/Dave%20LaRondehttp://forums.adobe.com/people/Dave%20LaRonde" \t "_blank). It takes time, but it’s a sure-fire way of fixing every frame.

1. Go through the footage frame by frame. Find the first flicker frame.  
2. [Duplicate the layer,](http://help.adobe.com/en_US/aftereffects/cs/using/WS3878526689cb91655866c1103906c6dea-7e94a.html" \l "WS3878526689cb91655866c1103906c6dea-7e8aa" \t "_blank) and on the duplicate, find an adjacent frame with no flicker.  
3. Make the duplicate 1 frame long, put it above the original layer, and move it in time to cover the flicker frame.  
4. On the first layer, create a [feathered mask](http://helpx.adobe.com/after-effects/using/alpha-channels-masks-mattes.html" \t "_blank)around the area(s) that received the flicker in the bad layer. If the shot moves, reposition as necessary.  
5.Repeat the steps above until you’re done fixing all frames with flicker.

**Using Color Correction effects built into After Effects**

Depending on the shot, you may be able to use [Color Stabilizer effect,](http://help.adobe.com/en_US/aftereffects/cs/using/WS3878526689cb91655866c1103a9d3c597-7bd2a.html" \l "WS3878526689cb91655866c1103a9d3c597-7bc9a" \t "_blank) but if the camera is moving or there’s a bunch of movement in the scene, the Black Point and White Point will change and you’ll have to animate it using keyframes. The effect works by setting points on the screen that you wish to stabilize. Setting the sample area to sample more pixels will help. Then keyframe the positions of the sample points based on the movement in the scene. The idea is to pick the most stable regions in the shot.

Use a combination of Auto Color, Auto Levels, and/or Auto Contrast from the [Color Correction effects](http://help.adobe.com/en_US/aftereffects/cs/using/WS3878526689cb91655866c1103a9d3c597-7bd2a.html" \t "_blank)category. Start off with Auto Levels. If that doesn’t work, try Auto Color and Auto Contrast.

**Third-party plug-ins for After Effects**

* The [Granite Bay Software GBDeflicker plug-in](http://www.granitebaysoftware.com/Products/ProductGBD.aspx" \t "_blank)has been known to work wonders. Granite Bay provides [some additional tips for avoiding or reducing flicker on their website](http://www.granitebaysoftware.com/Products/GBTEOS/TipFlicker.aspx" \t "_blank).
* The [GenArts Sapphire DeFlicker plug-in](http://www.genarts.com/software/sapphire/after-effects" \t "_blank)will stabilize luminance changes, but only if they’re on an isolated area of the screen. The rest of the image will create a reverse flicker, which you have to isolate with either a mask or matte.
* The [RE:VisionFX DE:Noise plug-in](http://www.revisionfx.com/products/denoise/" \t "_blank)does a wonderful job with shots in which the flicker is not uniform across the entire frame. For example, it can be used when fluorescent bulbs are out of phase with the camera. It can also be used for time-lapses in which the black and white points don’t vary that much within the image.
* A combination of [RE:VisionFX ReelSmart Motion Blur](http://www.revisionfx.com/products/rsmb/http://www.revisionfx.com/products/rsmb/" \t "_blank) and [Smoothkit](http://www.revisionfx.com/products/smoothkit/" \t "_blank)can also help with “strobing” caused by a lack of time samples.

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